Influence of ZnO on the ultrasonic velocity and elastic moduli of soda lime silicate glasses

ABSTRACT

The effects of ZnO on longitudinal and transverse ultrasonic wave velocities of soda lime silicate (SLS) glasses have been measured using the pulse-echo method at 5 MHz frequency at room temperature. The elastic properties: Longitudinal modulus, shear modulus, Young's modulus, bulk modulus, Poisson's ratio, and Debye temperature are found to be rather sensitive to the glass composition. Experiments showed that these parameters depend upon the ZnO-modifier content.

Keyword: Glasses; Annealing; Ultrasonic measurements; Elastic properties